Do you need to aspirate when giving intramuscular (IM) injections?

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Each year around 16 billion injections are given worldwide. A large number of these are given via the intramuscular (IM) route.

Many nurses have been taught to aspirate before giving an IM injection to ensure the medication is not inadvertently delivered into a vein.

Aspiration consists of drawing back on the plunger once the needle has been inserted to see if any blood returns into the syringe. It has been recommended that this negative pressure be sustained for 5–10 seconds.

In a systematic literature review Helen Sisson sought evidence to support best practice when it comes to aspirating before an intramuscular injection.

After completing a literature search, a total of only six papers met the inclusion and relevance criteria. Two were randomised controlled trials (RCT) and four were

surveys conducted amongst health professionals.
These were critically appraised and thematically analysed with respect to aspiration technique, pain, and influences on aspiration practice.

Points of interest identified in these papers include:

- Of many health professionals who do aspirate only a small percentage (3% in one study) do so for the recommended 5–10 seconds.
- There are inconsistencies in responses to the appearance of a blood-stained aspirate (sometimes all equipment and medication was discarded, other times the blood-stained medication was re-injected).
- Many who did *not* aspirate felt that aspiration resulted in increased pain.
- The two RCT's found that a slower technique that included 5–10 second aspiration were assessed as more painful than a 1–2 second 'faster' technique without aspiration (both these studies were in the paediatric setting).
- One survey of nurses that attended educational sessions advocating NOT to aspirate found many (40%) still chose to do so. Reasons given included: because they had be taught this way, that is what they observed others doing, they were instructed to do it this way, and fear of injecting into blood vessel.

Preferred sites for IM injection:

Usual sites for delivering an IM injection include the deltoid, vastus lateralis, ventrogluteal and dorsogluteal muscles.
The first 3 are recommended due to their avoidance of any proximity to major blood vessels and nerves. Aspiration is NOT required for these sites.
Aspiration is still advised when using the dorsogluteal muscle due to its proximity to the gluteal artery.

Take home: aspiration is NOT needed for IM injections if proper technique and location is used EXCEPT for the dorsogluteal site where it should be used.

The purpose of aspirating clearly has its origins in avoiding major vessels, but whilst considering the context within which the IM injection is administered, using the

recommended injection sites significantly reduces the risk of erroneously injecting into a vessel. This places an emphasis on nurses' knowledge of anatomy and the ability to correctly locate the appropriate injection site. However, for many nurses, aspiration has become a custom in the IM injection process and adopting an evidence-based approach to this may be challenging for some, perhaps due to the fear associated with accidentally injecting into a vessel. Clinical decision-making is influenced by many factors and understanding these is necessary for changes in practice to be successful. Furthermore, current textbook procedures advocate aspiration, and this coupled with previous recommendations to aspirate contradicts current guidance; it is therefore perhaps unsurprising that variations exist both in the practice and in the teaching of this procedure.

Following the literature review Helen concluded that nurse educators should ensure that IM injection technique is based on the latest evidence. It is clear that more research is needed in this area in order to develop supporting IM injection policies.

Administering an IM injection is a common nursing procedure yet debate over the necessity to aspirate during the procedure is evident in the literature and reflected in practice. More recently, evidence-based guidelines do not advocate aspiration, and whilst these guidelines refer to vaccination, it is recommended that with the exception of the dorsogluteal site, the principles should be applied when administering any IM injection regardless of the context. The lack of policy in other practice areas should be addressed to support this.

Reference: Aspirating during the intramuscular injection procedure: a systematic literature review – Sisson – 2015 – Journal of Clinical Nursing – Wiley Online Library. (n.d.). Retrieved September 3, 2015, from http://onlinelibrary.wiley.com/doi/10.1111/jocn.12824/abstract

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